

7. Write a Java program that calculates the area of 2D shapes and the volume of 3D shapes using method overloading . The program should include the 2D Shapes like Circle, Rectangle, Square, Triangle, 3D Shapes like Sphere, Cylinder, Cuboid, Cube

Code

```
class ShapeCalculator {

    // Area of Circle
    double calculate(double r) {
        return 3.14 * r * r;
    }

    // Area of Rectangle
    double calculate(double l, double b) {
        return l * b;
    }

    // Area of Triangle
    double calculate(double b, double h, int x) {
        return 0.5 * b * h;
    }

    // Volume of Cube
```

```
double calculate(int side) {  
    return side * side * side;  
}
```

// Volume of Cuboid

```
double calculate(int l, int b, int h) {  
    return l * b * h;  
}
```

// Volume of Cylinder

```
double calculate(double r, double h, boolean x) {  
    return 3.14 * r * r * h;  
}
```

// Volume of Sphere

```
double calculate(float r) {  
    return (4.0 / 3.0) * 3.14 * r * r * r;  
}  
}
```

```
public class OverloadingShapes {  
    public static void main(String[] args) {  
        ShapeCalculator s = new ShapeCalculator();  
    }  
}
```

```
        System.out.println("Area of Circle: " +  
s.calculate(5.0));
```

```
        System.out.println("Area of Rectangle: " +  
s.calculate(4.0, 6.0));
```

```
        System.out.println("Area of Square: " +  
s.calculate(4.0, 4.0));
```

```
        System.out.println("Area of Triangle: " +  
s.calculate(5.0, 8.0, 1));
```

```
        System.out.println("Volume of Cube: " +  
s.calculate(4));
```

```
        System.out.println("Volume of Cuboid: " +  
s.calculate(4, 5, 6));
```

```
        System.out.println("Volume of Cylinder: " +  
s.calculate(3.0, 7.0, true));
```

```
        System.out.println("Volume of Sphere: " +  
s.calculate(3.0f));
```

```
    }
```

```
}
```